Control of Mobile Source Pollutants in Connecticut

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Toxics and Mobile Source Group

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Air Bureau Goals

- Protect the public health and safety of citizens of Connecticut.
- Make the air safe to breathe.
- Sustain economic growth.
- Pursue a balanced multi-sector approach.

Transportation Objectives

- Identify and implement an efficient and cost effective strategy to reduce emissions of air pollutants, especially of air toxics, from mobile sources.
- Continue mandated progress towards attaining the National Ambient Air Quality Standards.
- Implement the Connecticut Climate Change Action Plan.

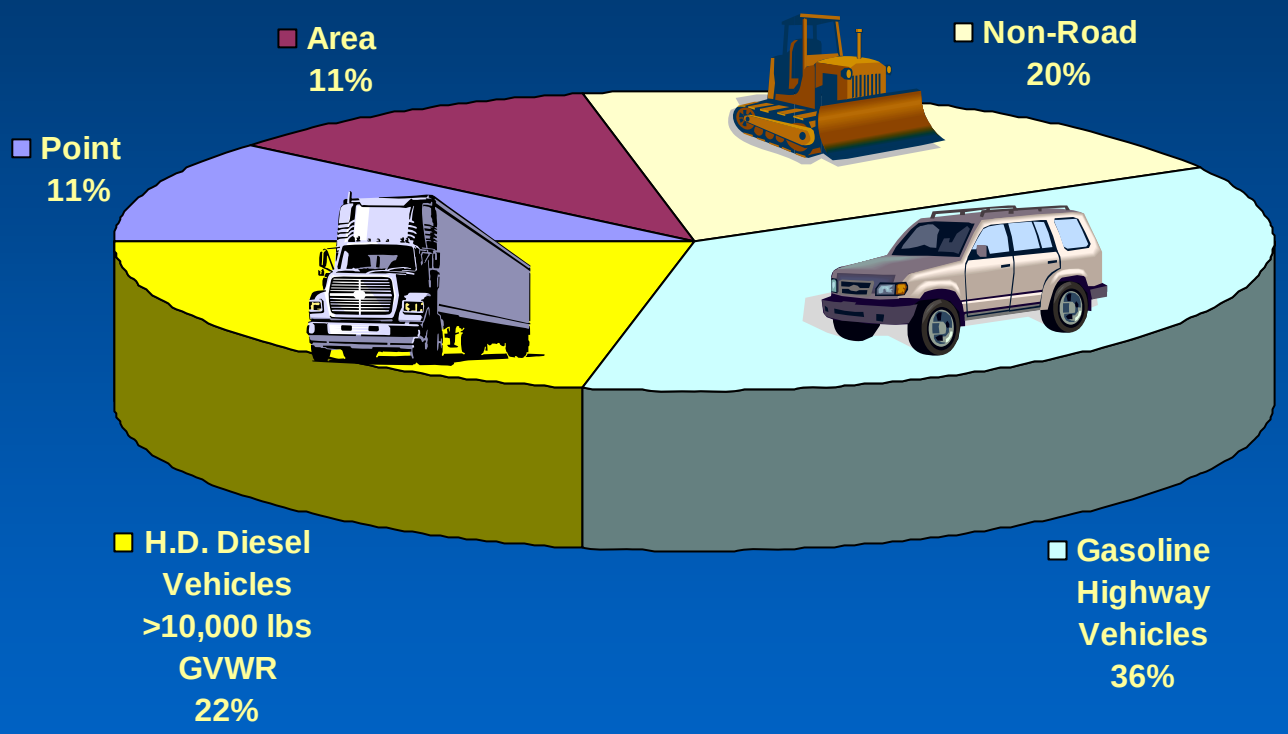
Air Pollution Challenges

- Ozone
- Fine Particulate Matter
- Toxics
- Carbon Dioxide
- Despite tremendous progress at cleaning up vehicles, still more work to be done.
- Tighter vehicle emission standards, but increasing vehicle miles traveled (VMT).

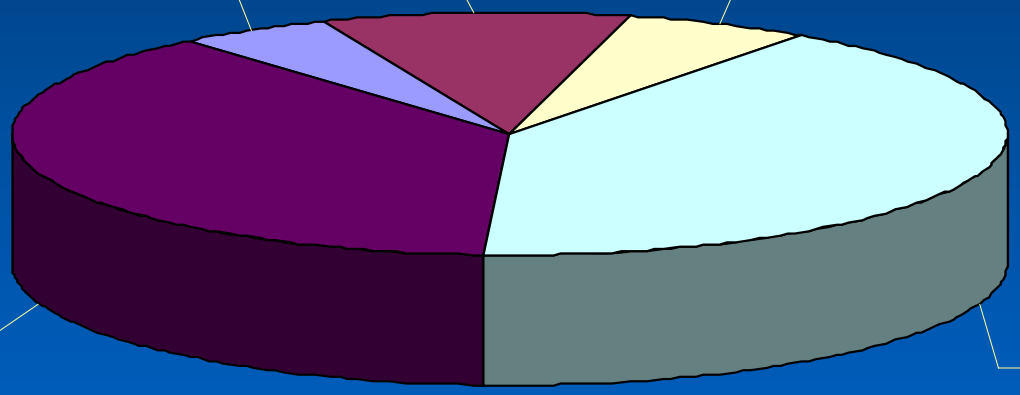
Pollution Volumes From On-Road Emissions

- 12% of VOC emissions,
- 58% of NO_X emissions,
- 5% of of PM emissions, and
- 40% of GHG emissions are transportation related.

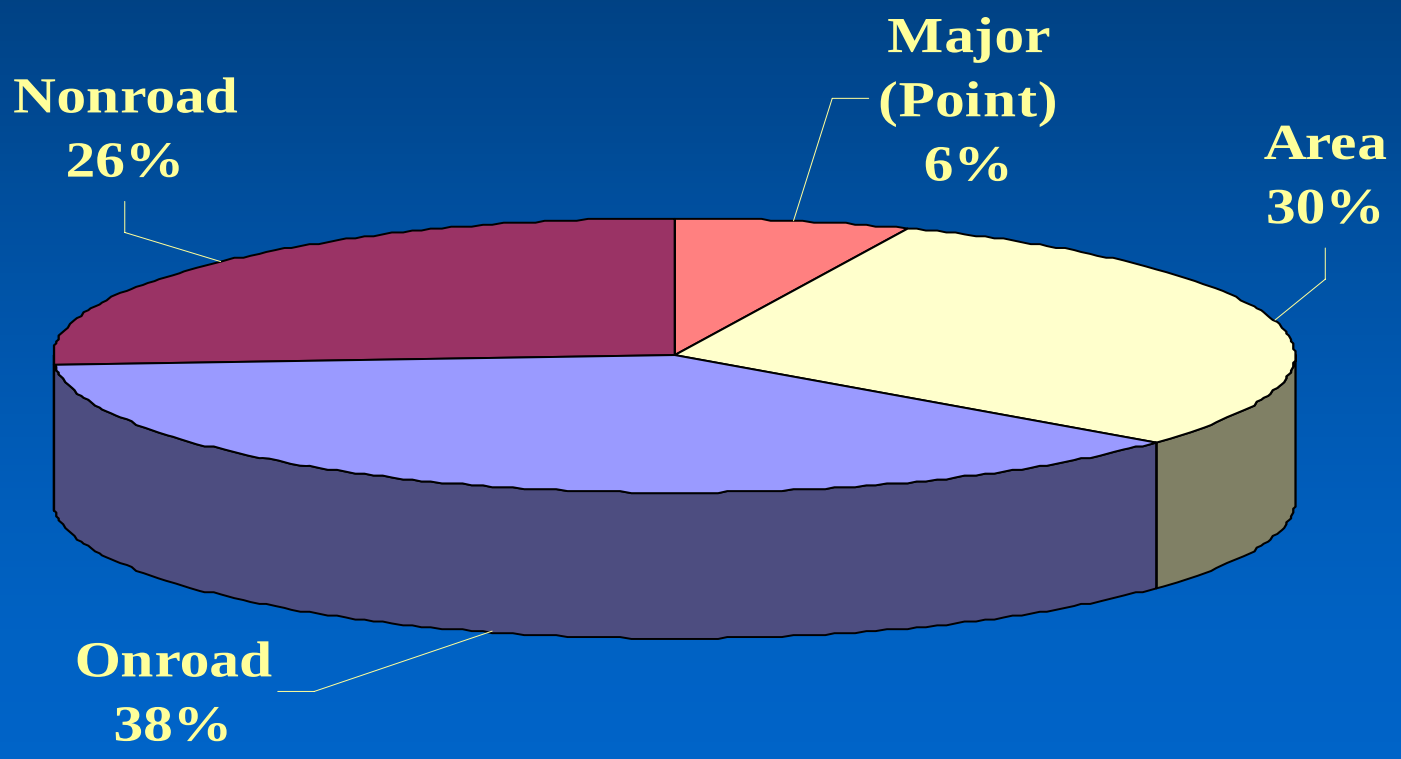
2002 Connecticut Emission Inventory
NO_X: 118,704 Tons/Year



2002 Connecticut Emission Inventory
$PM_{2.5}$ - 21,063 Tons/Year



1999 National Air Toxics Assessment
Connecticut Estimated Emissions
36,047 Tons per Year 188 Air Toxics



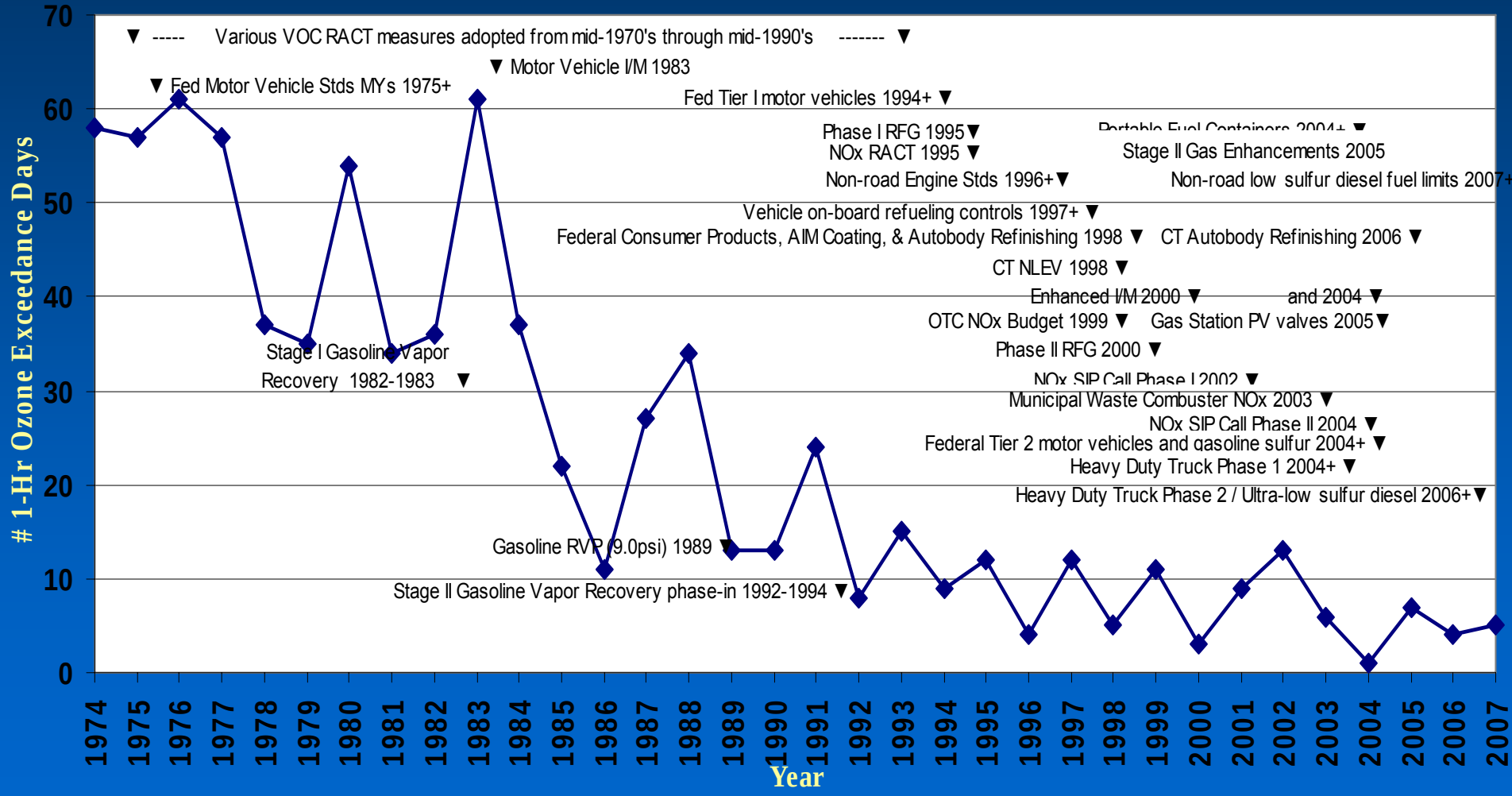
Designing Effective Multipollutant Strategies

To improve → **Ozone**, **PM, CO_2**, **NO_X, Toxics**

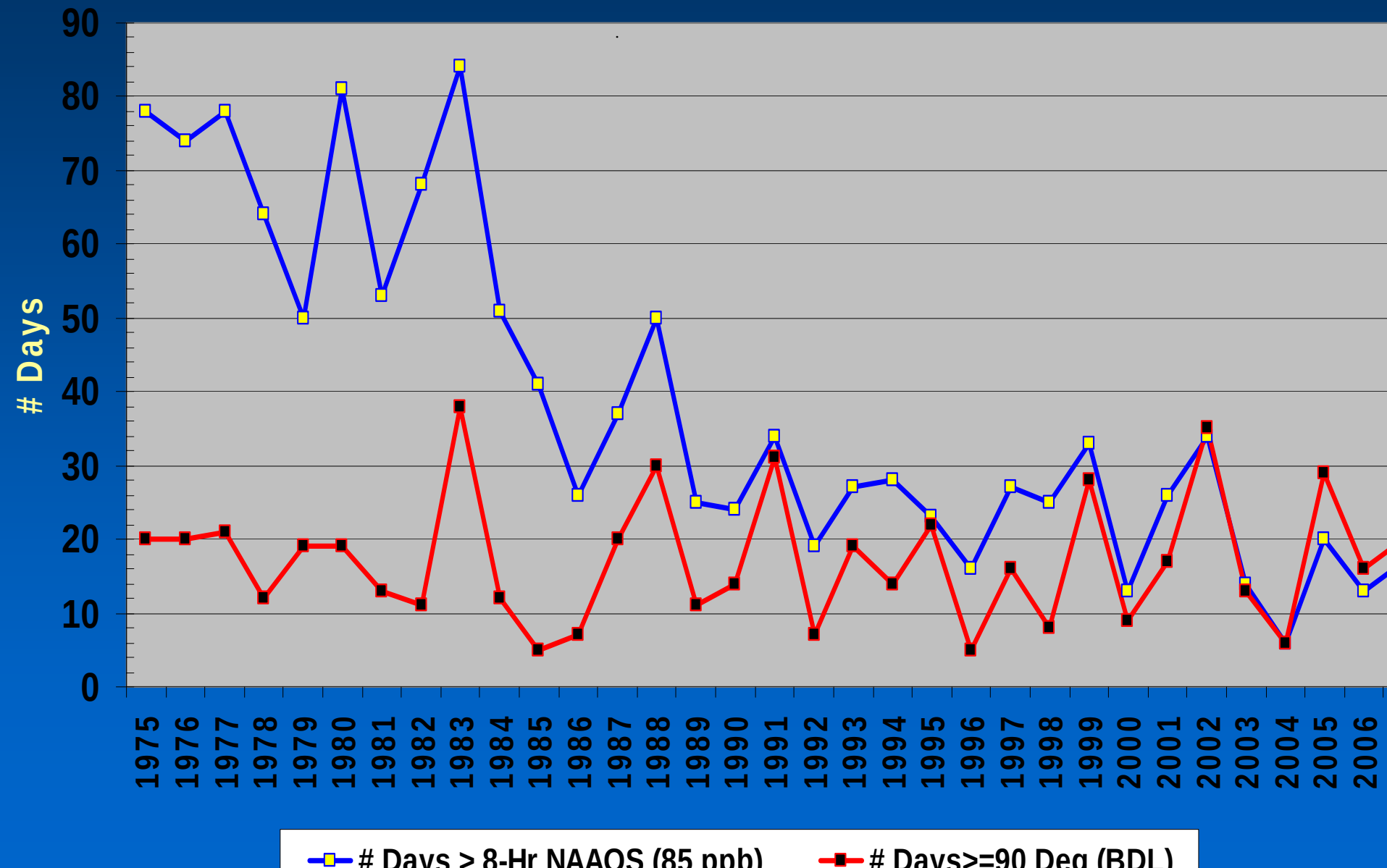
By changes in → **Technology**, **Behavior**

Control → **Combustion**, **Evaporation**

Connecticut 1-Hour Ozone Exceedance Day Trend and Implemented Control Strategies 1974 - 2007



Connecticut 8-Hour Ozone Exceedance Days vs. "Hot" Days

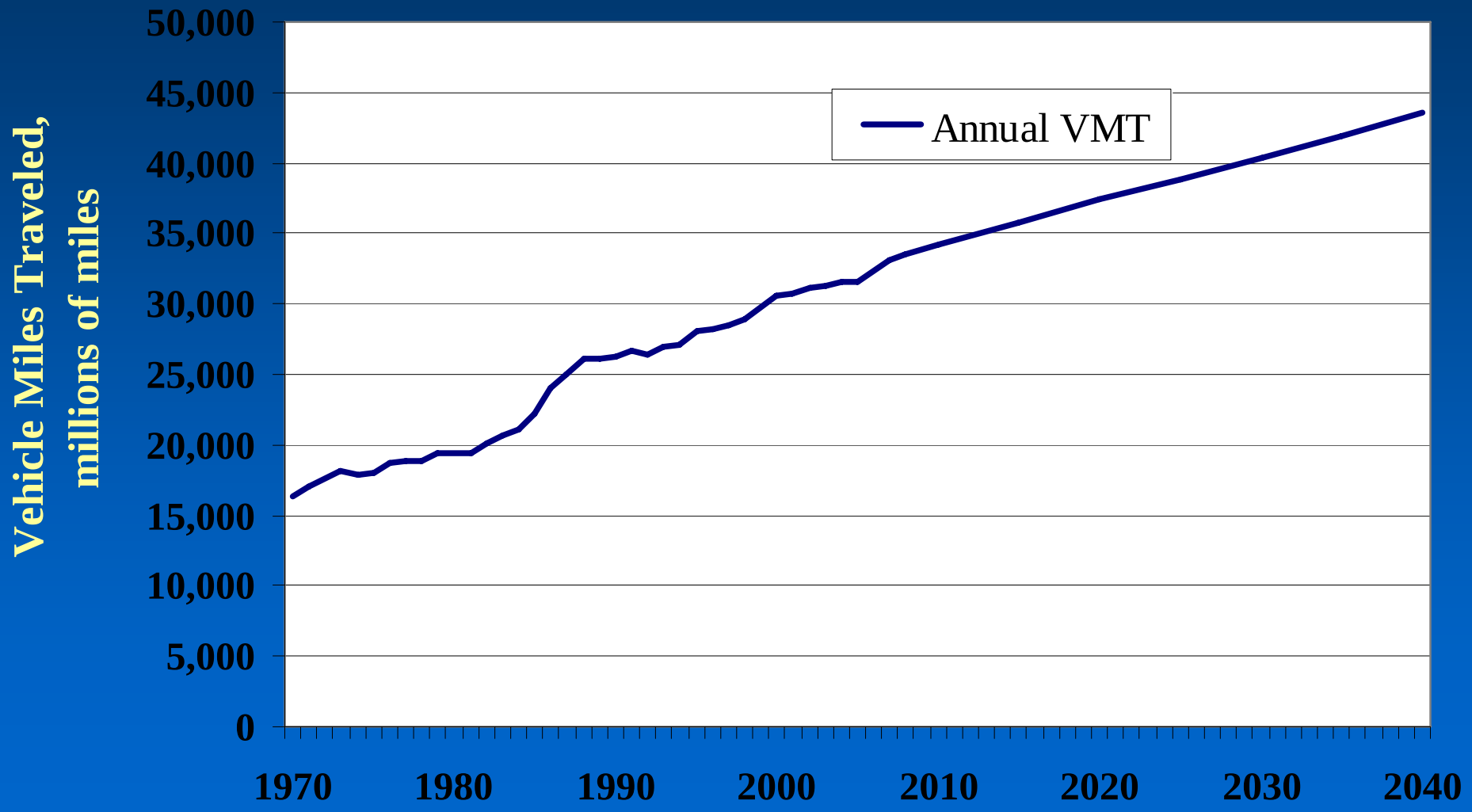


Passenger Vehicle Challenges

- Vehicle Miles Traveled (VMT) estimated to increase.
- Traffic issues including transportation corridor from NY to Boston.
- Gas consumption increasing: 1.577 billion gal/yr in 2005.
- Older vehicles have fewer controls than newer.
- Limited mass transit.

Annual Vehicle Miles Traveled (VMT)

1970 thru 1977 From Fuel Usage
1978 thru 2005 From HPMS
2007 thru 2040 Series 28D Travel Model



Integrated Strategies to Manage VMT

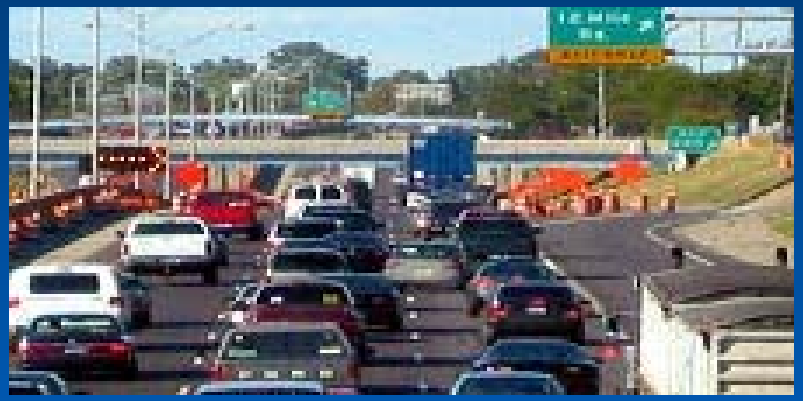
- Double riders using public transit.
- Enhance sustainable communities.
- Encourage driving less - Value Pricing.
- Transportation Demand Management.
- Public Act 07-70 requires state agencies to locate new facilities close to mass transit.

CT Landscape Stewardship

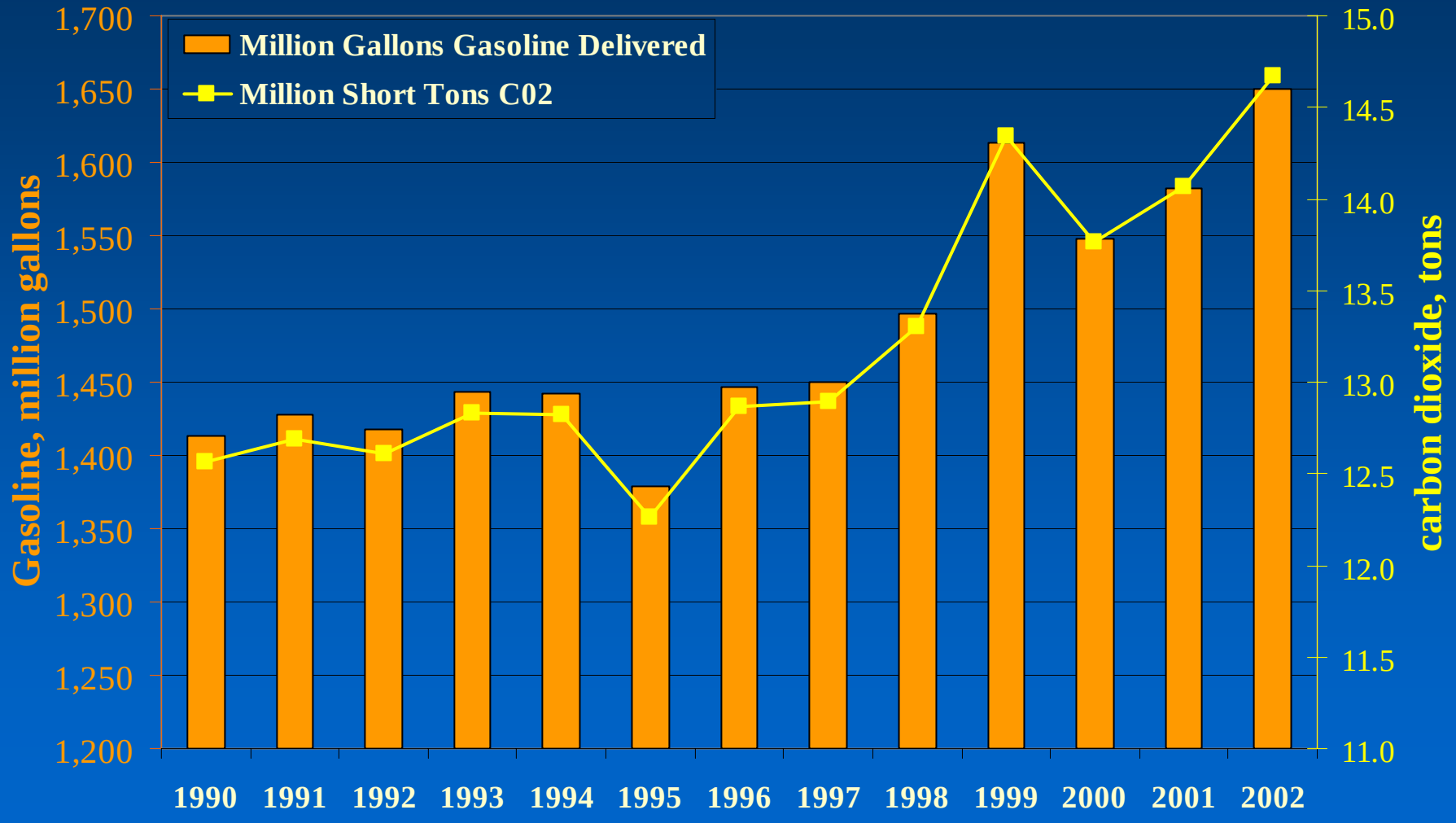
- Land development patterns are key to reducing VMT.
- Land use decisions are made locally.
- Outreach to municipalities to improve understanding of environmental impacts, including climate, of land use, green buildings and other decisions.

Traffic Issues Increase Air Emissions

- Idling
- Congestion
- Excessive speeds



Gasoline Sales and resulting CO_2 Emissions



Clean Car Strategies

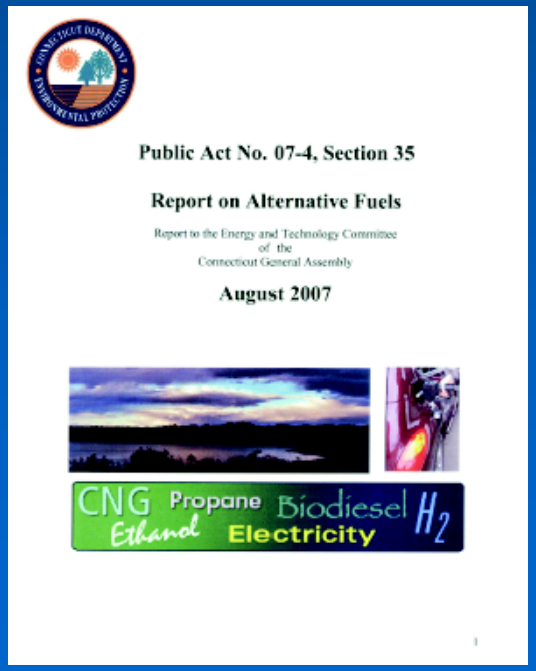
- Motor Vehicle Inspection and Maintenance.
- Increase the number of passengers per vehicle.
- Promote use of clean fuels.
- Support increased education and incentives to purchase vehicles with 40+ MPG.
- Adopted California LEV Standards for passenger vehicles for MY 2008.

California Low Emission Vehicle Program (CA LEV II)

- Implementation begins with Light Duty Vehicles in 2008 MY.
- Medium Duty Vehicles added 2009 MY.
- DMV coordination.
- Awaiting legal resolution of California waiver for GHG emissions control.

State Fleet Legislation

- **Conclusions:**
  - **Energy Policy Act (EPAct):CT does not qualify for an Alternative Fuel Waiver as alternative plan was not feasible or necessary.**
  - **CT will increase the use of alternative fuels by offering 85% ethanol in Hartford and Norwich.**
  - **CT will expand its fleet of hybrid electric vehicles using EPAct alternative fuel credits.**



Public Act No. 07-4, Section 35

Report on Alternative Fuels

Report to the Energy and Technology Committee
of the
Connecticut General Assembly

August 2007

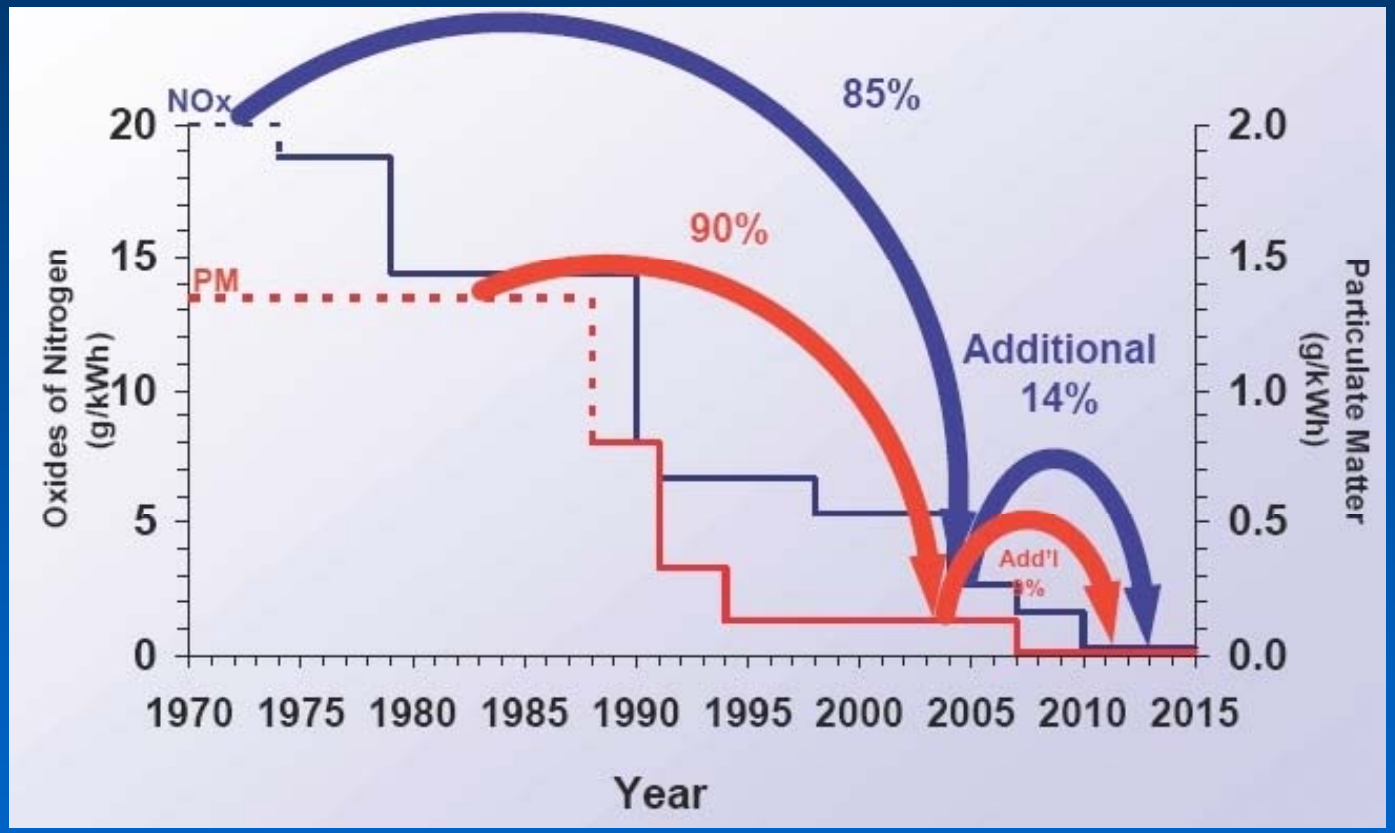
Best Workplaces for Commuters

- Reduce air pollution and traffic congestion by increasing alternative commuting choices.
- Employers offer commuter benefits to employees.
- 31 CT employers.
- www.bestworkplaces.org

Diesel Challenges

- Longer life compared to cars so new standards take longer to yield emissions reductions.
- Need to address the “legacy” or in use fleet.
- Fleet turnover or retrofits are effective strategies.

U.S. On-Highway Diesel Engine Standards



Courtesy Joe Suchecki, Engine Manufacturers Association

CT Clean Diesel Plan Implementation

School Buses

Construction Equipment

Transit Buses

Fleets

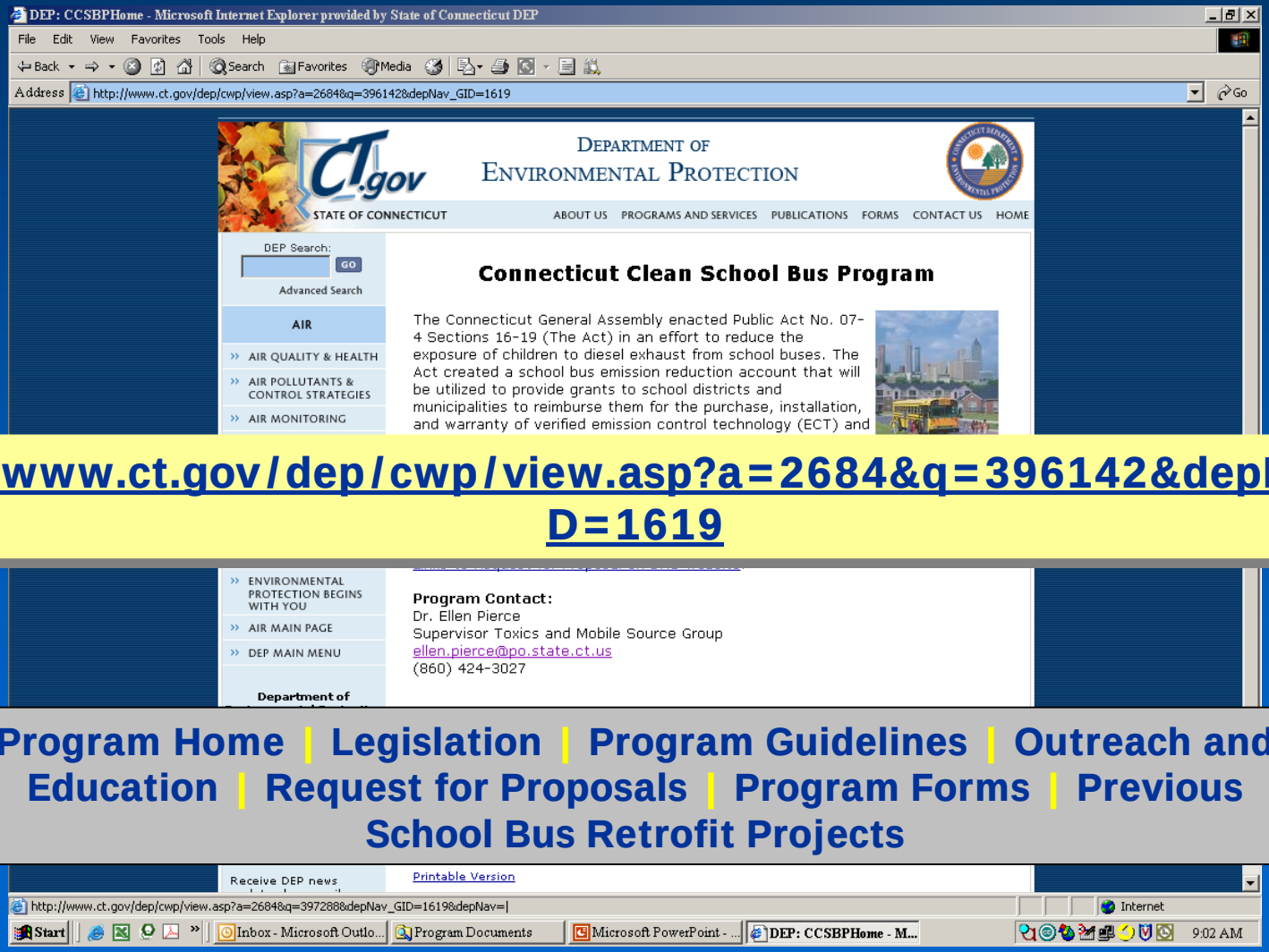
School Bus Retrofits

- Projects completed in: Norwich, New Haven, Newington, Lyme, Fairfield, Stamford and Bridgeport.
- Mansfield and Newtown have applied for NEDC funding – awaiting decision.
- CT will continue to assist municipalities in applying for federal funding.

Clean School Bus Act of 2007

- **Requirements:**
  - **Retrofit all CT school buses MY 1994 & later**
  - **Closed crankcase & emission controls**
  - **Budget $10 million**
  - **By September 2010**
  - **Outreach to municipalities**
- **Discussing option of fleet turnover.**

Clean School Bus Program Website



http://www.ct.gov/dep/cwp/view.asp?a=2684&q=396142&depNav_GID=1619

Diesel Retrofits

- Clean Construction Initiative with CT DOT for retrofitting construction vehicles at the Q Bridge
- Transit Fleets: Stamford
  - In progress: Hartford, New Haven
- Hartford Host Community Agreement: Landfill construction and recycling trucks

Coordinated Strategy for Heavy Duty Diesel

- Vehicle Inspection and Maintenance
  - Opacity standards and weight thresholds
- California Heavy Duty Diesel Emission standards – regulation update
- Multistate intermodal freight initiative
- Chip reflash
- Anti-idling strategies
  - Auxiliary Power Units (APUs)

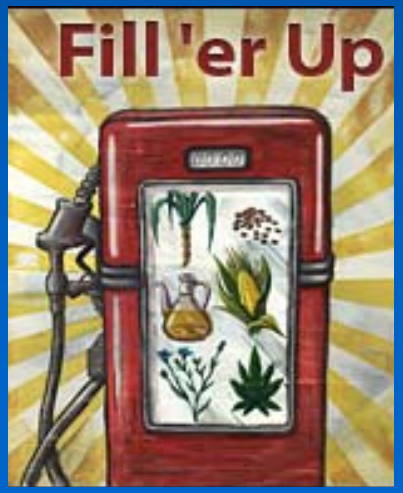
Anti-idling Strategies

- Idling limited to three minutes.
- Education and outreach efforts
  - Brochures and other visual reminder materials.
  - Focus on trucks reducing idling.
- Electrified truck stop established in North Stonington (116 spaces).

Low Carbon and Renewable Fuels

Evaluating opportunities for:

- **Low carbon fuels (lifecycle)**
- **Production and increased use of biodiesel**
- **Ethanol in gasoline**
- **Clean heating oil**
- **Construction use of ULSD**



Climate Change

- Climate Change Action Plan of 2005
- Transportation and Land Use Action Items
  - Light Duty Vehicles
  - Transit and Smart Growth
  - Clean Diesel
- http://www.ctclimatechange.com

Connecticut Climate Change

Light Duty Vehicle Action Items

- California LEV II standards
  - Tailpipe GHG standards – 25 to 30% ↓GHG emissions by 2022 - pending
- Public education initiative for low GHG vehicles
- Clean Car Labeling program - pending
- Fleet vehicle incentives and initiatives
  - Currently 277 hybrid vehicles in state fleet, with 100 more ordered.
  - Tax incentives for vehicles getting > 40 mph

Connecticut Climate Change

Transit and Smart Growth

- New Haven-Springfield rail.
- New Britain-Hartford Bus Rapid Transit.
- Hartford East Bus Rapid Transit.
- I-95 Corridor Coalition-Freight Initiative.

Connecticut Climate Change

Clean Diesel and Black Carbon

- Black carbon from diesel has a large global warming effect
- Diesel engines emit about half of BC in US
- CT Clean Diesel Plan supports CT Climate Change Action Plan

Connecticut Climate Change

Emerging Transportation Sectors

Ports

Marine Engines

Locomotives

Airports

Mobile Sources Controls

- Significant part of air pollution is from mobile sources.
- Mobile sources controls must be a significant part of the solution.
- Controls yield multipollutant reductions.
- Climate stewardship is fostered.
- Mobile sources are part of the remedy in CT.

Questions

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